REMARKS

This paper is filed in response to the final Office Action mailed December 13, 2007 (hereinafter "Office Action"). Claims 1-18, 27-28, 31, and 33-37 are pending in the application. In this regard, Claims 1-18, 27-28, 31, and 33-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,282,454, issued to Papadopoulos et al. (hereinafter "Papadopoulos") further in view of U.S. Patent No. 6,401,131, issued to Haverstock et al. (hereinafter "Haverstock"). Claims 10, 11, 16, 22, and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Papadopoulos and U.S. Patent No. 6,484,148, issued to Jammes et al. (hereinafter "Jammes"), in view of U.S. Patent No. 6,453,687, issued to Sharood et al. (hereinafter "Sharood"). Moreover, Claim 27 was objected to as containing a typographical error. Accordingly, applicants have amended Claim 27 to correctly recite a "Web site" to overcome this objection. In the interest of advancing prosecution, applicants have amended each of the independent claims to more distinctly distinguish the present application from the cited references. Applicants submit that the present application is in condition for allowance because the cited references fail to teach or suggest certain elements of both the independent and dependent claims, as discussed in detail later in this response.

Pursuant to 37 C.F.R. § 1.111 and for the reasons set forth below, applicants respectfully request reconsideration and allowance of the pending claims. Prior to presenting the reasons why applicants believe that all the pending claims are in condition for allowance, a brief summary of the present invention as well as the cited references is presented. However, it should be appreciated that the following summaries are presented solely to assist the Examiner in recognizing the differences between the pending claims and the cited references and should not be construed as limiting upon the present invention.

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<u>Summary of the Present Application</u>

The present application generally relates to the field of process control systems. More particularly, the present application is directed to providing the ability to define attributes of a Web site without using a markup language, wherein the Web site may be used to provide information regarding the operation of a control system, such as a programmable logic controller ("PLC").

In an embodiment, the invention includes a Web server module configuration application that provides an easy-to-use interface for defining attributes of a Web site that may be used to provide information about a control system. In particular, the Web server module configuration application allows a user to define attributes of a Web site using a non-markup language by providing the user with easy-to-use menus and interfaces. The Web server module configuration application stores the user-made selections in a non-markup language Web site database and transmits that database to the Web server module. The Web server module utilizes the contents of the non-markup language Web site database to dynamically generate markup language pages with information obtained directly from memory registers of the control system.

Once a user has defined the Web site via the Web server configuration application, the Web server configuration application stores the information as a non-markup language Web site database, also referred to in the application as a screen database and transmits that database to the Web server module. When requested, the Web server module utilizes the contents of the non-markup language Web site database to dynamically generate markup language Web pages. Information about the control system may then be provided to a user via the dynamically generated Web pages without markup language data persisting on the Web page. As a result, aspects of the present invention do not require Web servers that have extensive storage requirements. Instead, data defining a Web site is stored using the present invention in a manner

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that requires less computer resources than conventional systems. In this regard, Web servers generally use non-volatile memory to store conventional markup language Web pages and any associated information, such as graphics. Typically, a standard file system is created within the non-volatile memory with all the HTML contents for a page rendering stored there. For large Web sites, such a storage scheme results in a large amount of non-volatile memory being consumed.

Papadopoulos et al. (U.S. Patent No. 6,282,454)

Papadopoulos is purportedly directed toward a Web interface for a programmable controller. The stated goal of Papadopoulos is "to develop an automation control system whereby a user could use general, commercial networks such as the Internet in place of specialized industrial networks to remotely monitor automation control devices such as PLCs." (Papadopoulos, Col. 2, lines 25-30.) Papadopoulos purportedly describes the ability for a user to obtain snapshots of the status of a control system from a remote location via seven predefined Web pages. However, Papadopoulos fails to teach or suggest a system or method for receiving a request for a Web page and to dynamically provide a response without the markup language data persisting on a Web server. As such, there is no teaching or suggestion of generating a Web page with persisting markup language data on a Web server as recited in the independent claims of the present application.

Haverstock et al. (U.S. Patent No. 6,401,131)

Haverstock is purportedly directed to an enhancement to a Web server that enables attachment of HTML and non-HTML files to Web pages. In this regard, Haverstock describes a tool that allows users to identify both HTML and non-HTML documents in a networking environment using a Web browser. For example, a Web browser may be used to identify data items maintained in non-HTML databases (i.e., Lotus Notes). In instances when a user generates

a request to access a non-HTML data item, the Haverstock system translates the non-HTML data into a format supported by a Web browser. In this instance, one or more of the data items may be "attached" to a Web page for transmission to the client computing device. However, Haverstock fails to teach dynamically generating a markup language Web page request without markup language data persisting in the memory of a Web server.

The Claims Distinguished

Independent Claim 1

As amended, independent Claim 1 recites:

> A system for providing information regarding the operation of a control system, comprising:
>
> a Web server module associated with said control system, said Web server module having a memory operative to store a non-markup language Web site database that may be used to dynamically generate a markup language Web page in response to a request, wherein said Web site page is populated by the Web server module with information obtained directly from memory registers of the control system in response to the request;
>
> a remote computer operative to receive user-defined non-markup language configuration data defining attributes of said Web site, to store said configuration data as said non-markup language Web site database, to transmit said non-markup language Web site database to said Web server module, and to request and receive said markup language Web page from said Web server module; and
>
> a Web server module configuration application associated with the remote computer operative to create said non-markup language Web site database from information obtained locally at the remote computer and to transmit said database to said Web server module in response to the request; and
>
> wherein the Web server module is further configured to receive the non-markup language database from the remote computer in a request and to dynamically generate a markup language Web page that includes information obtained directly from memory registers of the control system

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in response to said request without data related to said markup language Web page persisting on said Web server module.

The Office Action asserts that Papadopoulos teaches the claim elements of a Web server module configured to "store a non-markup language Web site database that may be used to dynamically generate a markup language Web page in response to a request" and a remote computer configured to "receive user-defined non-markup language configuration data defining attributes of said Web site . . . ." and to "request and receive said markup language Web page from said Web server module." In this regard, the Office Action cites Papadopoulos at Columns 3-4, lines 4-65 as teaching these claim elements.

In no way does Papadopoulos teach a computer system that receives a "user-defined non-markup language configuration data . . . ." Instead, the cited portions of Papadopoulos clearly indicate that all interactions with the user occur at a Web site that presents and collects markup language data. In this regard, a section of Papadopoulos cited above states:

> the user 2 can connect to the Internet 14 using one of the number of Internet service providers and will enter the address of the Web site 4 when connected. The Web site 4 will display a home page which may contain text, some type of multimedia offerings such as graphics images, video, or audio, and possible hypertext links to other documents. The browser 10 will allow the user 4 to read the page and interact with the choices associated with it. The browser 10 will send commands to the Web site 4 which will use the application program 22 to display whatever information is available from the process control system 6. The browser 10 functions as a remote human machine interface or HMI control of the process control system as will be detailed below. [Papadopoulos at Col. 3, line 61-Col. 4, line 6.]

As described above, the remote computer recited in Claim 1 of the present application is configured to "receive user-defined non-markup language configuration data . . . ." The specification of the present application clearly indicates that the user may input the non-markup language data using menus and interfaces available from a local computer. In other words, a

user does not have to input markup language data into a Web site provided by a Web server as taught in Papadopoulos. Moreover, a service provider does not have to create or maintain a Web site with contents for obtaining configuration data. Accordingly, Papadopoulos teaches a system in which a Web server is required that stores memory intensive data items in order to, for example, "display a home page which may contain text, some type of multimedia offerings such as graphics images, video or audio . . . ." In contrast, elements in Claim 1 recite a method for obtaining configuration data using a non-markup language system.

Applicants submit that the portion of Papadopoulos cited above and the reference taken as a whole fails to teach receiving "user-defined non-markup language configuration data." Instead, all of the data input by the user into the Papadopoulos system occurs at a Web site that is configured to accept markup language data. However, in order to advance prosecution of the present application, applicants have amended Claim 1 to more distinctly distinguish the relevant claim elements from the cited references. As amended, Claim 1 recites "a Web server module configuration application associated with the remote computer operative to create said non-markup language Web site database from information obtained locally at the remote computer and to transmit said database to said Web server module . . . ." As discussed above, Papadopoulos utilizes a Web server that implements a resource-intensive Web site to collect data from a user. As amended, Claim 1 more clearly recites collecting configuration data locally and transmitting non-markup language configuration data to the Web module when a request is received.

Applicants agree that Papadopoulos fails to teach or suggest a Web server module that utilizes non-markup language to define attributes of a Web site. Applicants respectfully submit that Haverstock fails to make up the deficiencies related to the teachings of Papadopoulos. In this regard, the Office Action asserts that Haverstock teaches a method for viewing production

information and generating Web pages in which a Web server provides a user with access to information from a control system. Office Action at page 3. In order to advance prosecution of the present application, applicants have amended Claim 1 to more distinctly distinguish the relevant claim elements from Haverstock. As amended, Claim 1 recites, a "Web server module that is configured to receive the non-markup language database from the remote computer and to dynamically generate a markup language Web page that includes information obtained directly from memory registers of the control system without data related to the markup language Web page persisting on said Web server module." In this regard, Haverstock teaches a system in which markup language data persists on the Web server and in order to provide information related to a control system. As stated in the Office Action, Haverstock teaches a "system and method for viewing production information and generating Web pages **in which a Web server opens a template file** related to the requested Web page, creates hyperlinks and other information content by executing database references embedded within the template file to generate any markup language page." Office action at page 3. The cited sections of Haverstock clearly indicate that markup language data persists on the Web server in order to generate a markup language Web page. As amended, Claim 1 recites a method that creates the markup language Web page without requiring markup language data to persist on the Web server module. Instead, information used to create the Web page is accessed directly from memory registers of the control system. As a result, the present invention may utilize a Web server that is a limited resource device having smaller memory and processing requirements when compared to the Papadopoulos and Haverstock systems.

Under 35 U.S.C. § 103, a *prima facie* case of obviousness is established only if the cited references, alone or in combination, teach each of the limitations of the recited claims. *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993). For the reasons discussed above, applicants respectfully

submit that the cited references fail to teach all of the elements recited in Claim 1. Accordingly, independent Claim 1 is patentable over Papadopoulos and Haverstock, and withdrawal of this rejection is requested.

Independent Claim 27

As amended, Claim 27 recites:

> A method for providing information regarding the operation of a control system, comprising:
>
> receiving user-defined non-markup language configuration data defining attributes of a Web site wherein the Web site corresponds to aspects of a programmable logic controller defined by a user wherein said configuration data defines a table with entries corresponding to the contents of read or write memory registers contained within said control system, wherein said data defining said table is created by receiving a mapping of a text tag to said memory register and by receiving a selection of said tag and a request that said tag be displayed in said table;
>
> storing said configuration data as a non-markup language Web site database; and
>
> in response to a request, dynamically generating a Web page defined by the non-markup language configuration data stored as a non-markup language Web site database that provides information regarding the operation of a control system, wherein said markup language Web page is generated dynamically without persisting on a Web server.

In order to advance prosecution of the present application, applicants have amended Claim 27 to more distinctly distinguish the relevant claim elements from the cited references. As amended, Claim 27 recites receiving non-markup language configuration data "wherein said configuration data defines a table with entries corresponding to the contents of read or write memory registers contained within said control system, wherein said data defining said table is created by receiving a mapping of said memory register and by receiving a mapping of a text to said memory register and by receiving a selection of said tag and a request that said tag be displayed in said table." By obtaining configuration data in this way, aspects of the present

invention as reflected in Claim 27 are further able to generate a markup language Web page "wherein said markup language Web page is generated dynamically without persisting on a Web server." As described above, both Papadopoulos and Haverstock teach systems in which markup language data persists on the Web server. In this regard, Haverstock teaches a system and method for viewing production information and generating Web pages using a template file that persists on a Web server, in contrast to elements in Claim 27. Accordingly, independent Claim 27 is patentable over Papadopoulos and Haverstock and withdrawal of this rejection is requested.

Dependent Claims 2-18, 28, 31, and 33-37

Claims 2-18, 28, 31, and 33-37 depend directly or indirectly from independent Claims 1 and 27, respectively. Accordingly, when read in combination with Claims 1 and 27, applicants submit that Claims 2-18, 28, 31, and 33-37 are also in condition for allowance and request that the 35 U.S.C. §103(a) rejections be withdrawn and these claims allowed.

Dependent Claims 10, 11, 16, 22, and 23

As noted above, the Office Action rejected Claims 10, 11, 16, 22, and 23 under 35 U.S.C. § 103(a) as being unpatentable over Papadopoulos-Haverstock in view of Jammes, and in further view of Sharood. Applicants respectfully disagree. Claims 10, 11, 16, 22 and 23 depend directly or indirectly from independent Claims 1 and 27, respectively. Accordingly, when read in combination with Claims 1 and 27, applicants submit that Claims 10, 11, 16, 22, and 23 are also in condition for allowance and request that the 35 U.S.C. § 103(a) rejections be withdrawn.
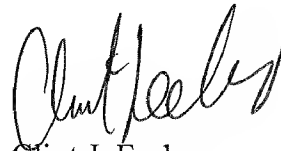
CONCLUSION

In view of the above remarks, applicants respectfully submit that the present application is in condition for allowance. Reconsideration and reexamination of the application, and allowance of the pending claims at an early date, is solicited. If the Examiner has any questions

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or comments concerning the foregoing response, the Examiner is invited to contact the applicants' undersigned attorney at the number below.

Respectfully submitted,

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